FACTORS AFFECTING AN INDIVIDUAL'S ADMISSION INTO SUBSTANCE ABUSE TREATMENT

by

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ABSTRACT

This study was looking at the factors that predicted an individual's initial entrance into substance abuse treatment. More specifically, this study looked at the influence between an individual's demographics, preferred drug of choice and number of Interim Groups attended and how these factors related to the individual's motivation to follow through with substance abuse treatment. The participants in this study were individuals who were on local substance abuse treatment waiting lists. An analysis of the data was conducted using logistic regression. The statistical results indicated that demographics and preferred drug of choice were not predictive of an individual's substance abuse treatment entry. Factors such as the number of Interim Groups attended and the individual's motivation and readiness for substance abuse treatment, as measured by the SOCRATES, were found to be significant, although they offered little predictive value regarding subsequent substance abuse treatment attendance. Research and clinical implications of these findings were discussed.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure Page

CHAPTER 1

INTRODUCTION

Introduction and Review of the Literature

One of the biggest challenges currently facing the field of substance abuse is that of individuals who have been referred for substance abuse treatment not continuing with the process to initiate this treatment. In fact, research indicates that approximately 30% of individuals seeking treatment for substance abuse do not follow through (Donovan, Rosengren, Downey, Cox, & Sloan, 2001; Weisner, Mertens, Tam, & Moore, 2001). There are numerous explanations that could be used to help explain this lack of treatment follow through. One such explanation is the limited availability of spaces in substance abuse treatment programs. Typically when individuals cannot immediately enter into substance abuse treatment programs due to the lack of available spaces, or the lack of immediate public funding, they are placed on waitlists until a space in the treatment program or the funding becomes available.

Waitlists are a concern because it has been found that when a person is placed on a waitlist before treatment it decreases his or her motivation for following through with that referral (Miller, 1985). Studies indicate that the longer individuals are on a waitlist for treatment the more likely it is for them to discontinue therapy prematurely (Donovan

et al., 2001). Recent literature on the average waiting time for substance abuse treatment programs, as well as the average waiting time for publicly funded treatment, is scarce, and one of the only studies reporting average waitlist time periods is Brown, Hickey, Chung, Craig, and Jaffe (1989). In this older study, looking at 42 cities throughout the United States, it was found that at least 75% of these cities had an average waiting time of 7-26 weeks for substance abuse treatment programs (U.S. Conference of Mayors as cited in Brown et al., 1989). While these statistics are over 20 years old, and are referencing waitlists for substance abuse treatment in general and not just those individuals awaiting public funding, it is likely that these time periods are comparable to what an individual seeking substance abuse treatment would face today. In Utah, in fact, in a 2007 Annual Report issued by the Utah Division of Substance Abuse and Mental Health, it was indicated that out of 95,058 individuals who sought substance abuse treatment in 2007, only 16,469 individuals were able to receive publicly funded substance abuse treatment (Utah Division of Substance Abuse and Mental Health, 2007). These findings suggest that that the other 78,589 individuals were either placed on waitlists, had to pay for treatment on their own, or never followed through with receiving treatment. Additionally, even for those individuals who did receive publicly funded substance abuse treatment, it is likely that they were placed on a waitlist for a time period before receiving this treatment (Utah Division of Substance Abuse and Mental Health, 2007).

The aforementioned statistics help to emphasize the concern that substance abuse waitlists bring about, especially given that the goal is for individuals to initiate and follow through with substance abuse treatment. Yancovitz et al. (1991) further illuminates the apprehension of using waitlists, as he and colleagues suggest that seeking treatment is a

critical time for substance users who are looking for options to help change their behavior, and being on a waitlist means that they are most likely receiving no assistance during this time. An assumption of waitlists is that individuals are expected to retain the motivation they have for receiving substance abuse treatment and initiate treatment when it becomes available.

Graham, Brett and Bois (1995) suggest individuals seeking substance abuse treatment are often ambivalent about changing their substance use behaviors. They further indicate that this ambivalence could help to explain the high attrition rate in treatment programs as well as on waitlists. Cellucci, Krogh and Vic (2006) elaborate on why individuals in need of substance abuse treatment may hesitate to receive that treatment. They posit that oftentimes these individuals fail to recognize their substance use as problematic, or, if the individuals recognize the problematic behavior, they believe that they can change or reduce the problematic behavior on their own. Following this logic, it seems likely that if an individual believes they can alter their behaviors on their own, they would be less likely to initiate substance abuse treatment after being placed on a waitlist. Brown et al. (1989) found similar reasoning for individuals who became disillusioned while awaiting substance abuse treatment. Brown et al. examined individuals who were on a waitlist for a residential program for cocaine abuse and found that the longer these individuals were on the waitlist, the less interested they became in receiving substance abuse treatment. Moreover, they viewed the substance abuse program as being unable to meet their immediate needs and they became less confident in the program's ability to provide them assistance at a later time. Despite this research being 2 decades old, the findings appear to be consistent with the findings of more

contemporary literature in the field.

In a study looking at individuals waiting to receive methadone treatment, Bell, Caplehorn and McNiel (1994) concluded that waitlists "deterred" individuals from entering treatment, and they were less likely to follow through with attending treatment after being placed on a waitlist. Bell et al. offered no explanation of possible reasons for this deterrence, but Carr et al. (2008) suggested that individuals drop out of treatment prematurely due to a limited tolerance of being on a waitlist. Additionally, they found that the longer an individual spends on a waitlist, the less readiness they have for treatment. More specifically, Carr et al. posit that while individuals were likely to recognize their problematic substance behavior, and they desired to change that behavior by seeking treatment, being on a waitlist reduced their motivation to initiate treatment. Furthermore, Bell et al. (1994) suggest that these delays in the treatment admission process have an adverse effect on the individual's engagement when they make it into treatment. This suggests that waitlist delays make it more difficult to engage clients after treatment initiation.

With most substance abuse treatment programs having a waitlist of at least 1 month or longer for admission to the program, it is of concern that these waitlists may act as a deterrent for an individual to enter the treatment that they desire and most likely need (U.S. Conference of Mayors as cited in Brown et al., 1989). This then creates another challenge facing the field of substance abuse, which is discovering what helps individuals follow through with their recommended substance abuse treatment despite having to be placed on a waitlist.

One well-researched characteristic believed to be fundamental in individuals

seeking substance abuse treatment, and being placed on waitlists, is that of motivation. According to Miller (1985), motivation is defined as an "acceptance and a surrender" to treatment, an expressed concern by the individual of his or her desire for help. In applying this definition to an individual seeking substance abuse treatment, not only have they recognized their problematic substance use behavior, but they are expressing a desire to receive help to alter it. Intuitively, the more motivation an individual has, the more likely he or she would be to follow through with a treatment recommendation, regardless of waitlist time. Literature supports this postulation and indicates that higher motivation is related to an individual attending their first session of substance abuse treatment (DiClemente, Bellino & Neavins, 1999; Hiller, Knight, Leukefeld & Simpson, 2002). In fact, Joe, Simpson and Broome (1998) suggested that motivation not only helps predict that an individual will initiate treatment, but it also contributes to remaining in treatment.

Consistent with the aforementioned studies, Ryan, Plant and O'Malley (1995) discovered that a lack of motivation was one of the most frequently cited reasons for dropping out of treatment for adult alcoholics. Miller (1985) describes motivation for substance abuse treatment as being that the individual has recognized that he or she is incapable of changing his or her situation on one's own. He suggests they are not in denial about having a problematic behavior, and they are not resisting getting help to change their behavior. Applying Miller's postulation to individuals who fail to initiate their substance abuse treatment, it would be likely that they have insufficient motivation for treatment. They either deny having a problem, refuse to accept help to overcome their problem or are otherwise resistant to the idea of attending treatment, which are all

consistent with the findings of Cellucci et al. (2006) that were previously mentioned.

Numerous studies have been conducted to help uncover what helps increase motivation for persons seeking substance abuse treatment. Some researchers suggest that individuals experiencing negative consequences due to their substance use often become more motivated to participate in substance abuse treatment (Lozano, Stephens & Roffman, 2006; Ryan et al., 1995). In looking at the common characteristics of people seeking substance abuse treatment, Field, Duncan, Washington and Adinoff (2007) found that individuals are more likely to seek treatment and change their substance use if they have experienced significant negative consequences, such as a loss of a job, or emotional distress, such as relationship disturbances. For example, if an individual perceives themselves as "hitting bottom," defined as his or her perception of the negative consequences of their substance use, or if their use has caused a major lifestyle change, he or she will be more motivated to enter treatment and change (De Leon, Melnick & Kressel, 1997).

A common theme in the literature looking at what prompts individuals to begin to change their substance use patterns is, as De Leon et al. refer to it, "hitting bottom." Cunningham, Sobell, Sobell and Gaskin (1997) evaluated the reasons for substance users to seek substance abuse treatment and determined that oftentimes "hitting rock bottom," was what prompted these individuals to consider attending substance abuse treatment. Additionally, these individuals were more likely to follow through with their intention of attending substance abuse treatment, suggesting they are likely high in motivation for behavioral change. Along the same lines, in a study looking at the role of motivation in individual's engagement in treatment, Rapp, Li, Siegal, and DeLiberty (2003) revealed

that individuals with the highest level of motivation at treatment entry had often recently "hit bottom," which they defined as suffering severe negative consequences and losing all that they have. The findings of Rapp et al. suggest that oftentimes those with the highest motivation are those individuals with the most severe substance use problems. While this could be the case, it appears the more important finding from Rapp et al. was their finding indicating that a person's motivation for substance abuse treatment is often determined by the recognition of recent problems in his or her life. This finding would suggest that whether or not an individual would be considered as having a severe substance use problem, the subjective awareness of the consequences of their use is the more important factor in determining their subsequent motivation.

Nwakeze, Magura and Rosenblum (2002) looked at a soup kitchen population of indigent individuals meeting criteria for substance dependence disorders, although not currently receiving treatment. They found that the individuals with the greatest desire for help were those who had recently experienced negative consequences, such as physical or mental health issues or a loss of employment, due to their substance use and were therefore involuntarily forced to acknowledge the adverse effects of their addiction. Nwakeze et al. suggest these negative consequences helped to increase these individuals' motivation for treatment. Ryan et al. (1995) also postulate that experiencing adversities and consequences due to substance use can prompt individuals to develop a more intrinsic motivation, meaning these persons are likely to see their behavior as stemming from their own choices, and therefore, are more able to take accountability for their actions and their role in changing them. Ryan et al. suggest this increased ability to take responsibility translates into increased motivation for seeking substance abuse treatment

and complying with treatment once they begin it.

As the aforementioned literature has demonstrated, combined with a lack of motivation to change, oftentimes individuals are not ready to change. Readiness is defined as an individual's preparedness to engage in treatment and to adopt new behaviors (DiClemente, Schlundt & Gemmell, 2004). It has been found that not only is motivation a key factor in predicting a substance user remaining in treatment, but a user's readiness for treatment also plays a key role in their seeking, complying with and remaining in treatment (Melnick, De Leon, Hawke, Jainchill & Kressel, 1997). It could be posited that motivation and readiness are synonymous when looking at the key ingredients for successful initiation and follow through in substance abuse treatment.

For motivation and readiness to really exist, an individual must be able to recognize their problem, to search for ways to change their problem and to begin and stick with a change strategy (Dench & Bennett, 2000). In other words, these men and women need to be ready to change and have to want to change their problem behavior. Several cognitive and affective processes have been identified that a substance user must go through before they are fully ready and committed to change (Carey, Purnine, Maisto & Carey, 1999). The first of these processes is that the person experiences attitudinal shifts that reflect dissatisfaction with their substance use behavior, either in the behavior itself or the lifestyle that surrounds the behavior. The person also becomes receptive to discuss the problems with their behavior and the possible negative consequences of continuing this behavior. And finally, the person makes initial modifications to their behavior and continues to make changes until a new behavior is established.

To better understand the influence of motivation and readiness on the initiation

and retention of substance abuse treatment, it is important to consider the stages of change theory, or Trans-Theoretical Model. This theory posits how an individual progresses through five stages of readiness to change during his or her substance abuse recovery (DiClemente et al., 2004). Motivation is the key factor throughout the entire process of this change model, demonstrating that readiness for treatment and behavioral change are dependent upon an individual's motivation (DiClemente et al., 2004). Prochaska, DiClemente and Norcoss (1992) have identified the following five stages of change: 1) Precontemplation, 2) Contemplation, 3) Preparation, 4) Action and 5) Maintenance. During precontemplation the individual may be in denial or unaware of their problem, and there is no intent to change their behavior in the near future. In the second stage, contemplation, the individual may be thinking about changing their behavior, he or she is aware that there is a problem with his or her behavior, but have not yet taken any concerted effort to change this behavior. During this time the person is likely weighing the pros and cons of their current behavior and in continuing or changing that behavior. In preparation, the individual is making small changes to his or her behavior, they have made small reductions in their problem behavior and they intend to make more. The fourth stage is action, where the person is committed to change and is taking the necessary action and effort to change the behavior; they may modify their environment to help them change his or her behavior. The overt behavioral changes that take place during the action stage require substantial amounts of time and effort and a considerable amount of commitment. The fifth and final stage is maintenance, where the individual maintains and continues the changes they have made in their problem behavior and works to prevent relapse. It is expected that individuals often progress through this

stages in a nonlinear fashion and may revisit several of the stages throughout their substance abuse recovery. Although it should be noted that without motivation, a person is unlikely to progress very far in this stage model, and, in return, is unlikely to progress very far in treatment.

The stages of change authors posit the importance of recognizing a substance user's readiness and motivation for change and targeting the treatment and interventions to the stage that the user is currently in (Prochaska et al., 1992). This knowledge has implications for the use of waitlists and the subsequent lack of provided treatment during that time, and suggests that interventions should be targeted to those on waitlists to assist them in increasing their motivation and readiness for treatment. As evidenced by Rohsenow et al. (2004), who performed assessments on individuals in cocaine abuse day treatment and found that those individuals espousing the precontemplation and contemplation stages of change were not as receptive to treatment interventions that would require action, or overt behavioral changes. So while these individuals were participating in substance abuse treatment, they were likely not receiving the same benefits that an individual at a higher level of the motivation would gain from the intervention. Furthermore, Rohsenow et al. suggest that those in the action stage of change may also experience deleterious effects if the treatment interventions are not specifically targeted to his or her stage of change.

Many interventions have been developed to help address the importance of targeting substance abuse interventions that match the individual's motivation level. The most notable of such interventions is that of Motivational Interviewing, which assists individuals in proceeding to the action stage of change (Miller, Yahne, & Tonigan, 2003).

While literature suggests that Motivational Interviewing has numerous benefits, one of the key steps in the Motivational Interviewing process is allowing the individual to participate in what is called the 'decisional balance,' or the weighing of the pros and cons of retaining their substance use behaviors or of changing those behaviors (Miller & Rollnick, 2002). Miller (1985) indicates this process helps to decrease the attractiveness of the substance using behavior by reducing the ambivalence of change, and makes it more likely that the client will move towards the action stage of change and start making changes. As many of the previously mentioned studies have indicated, oftentimes people fail to initiate their substance abuse treatment because they are ambivalent about making changes in their substance use and other areas of their lives (Cellucci et al., 2006; Graham et al., 1995). Given the predicament that waitlists create for such persons who are ambivalent about making changes in their lives, it would appear that Motivational Interviewing and similar interventions would help these people become more committed to change and more likely to comply with their substance abuse treatment recommendations.

A study conducted by German et al. (2006) explored individual's motivation in discontinuing their methamphetamine use. German et al. indicate that most individuals originally believed that their methamphetamine use was "controllable" and they were experiencing no negative consequences. Applying the stages of change theory, these participants were precontemplative. German et al. indicate that after having an opportunity to explore their substance use and the consequences, both negative and positive, these individuals were more likely to see benefit in ceasing his or her methamphetamine use, and likely moved into the contemplation stage. This technique is

what Miller and Rollnick (2002) refer to as the decisional balance, where the person considers both the positive and negative of retaining or changing their behaviors. These findings are consistent with other literature that states that problem recognition often helps individuals increase their motivation for behavioral change and substance abuse treatment (Fickenscher, Novins & Beals, 2006).

Horvath (1993) emphasizes the use of a cost-benefit analysis to help increase motivation in individuals seeking substance abuse treatment. This cost-benefit analysis is comparable to Miller's decisional balance and helps the individual to recognize the consequences of their substance use, while at the same time, enhancing the desirability of change. Horvath (1993) believes the cost-benefit analysis helps to emphasize the individual's reliance on their drug of choice and helps to highlight for them alternatives to using substances. This process helps the person resolve some of the ambivalence they are experiencing as they begin to consider changing his or her behaviors, by allowing the person to identify the reasons for changing. As previously discussed, Nwakeze et al. (2002) found that the increased acknowledgement of the adverse effects of substance use can greatly increase an individual's desire for treatment, which would also likely increase the likelihood that the individual moves into the contemplation or preparation stages of the stages of change. This is further supported by Fiorentine and Hillhouse (2004), who looked at expectancies of individuals seeking treatment for substance abuse and found that experiencing negative consequences due to substance use can help move an individual from the precontemplation to contemplation stage. Fiorentine and Hillhouse suggest that negative consequences make it difficult for an individual to retain positive expectations about continuing to use their drug of choice, and make it more likely for

these individuals to view treatment in a more positive light.

Whether or not individuals receive formal interventions to help them weigh the pros and cons of their substance use behavior, it appears likely that most individuals making the commitment to change their behavior and attend substance abuse treatment have, at some time, evaluated their reasons for change. Share, McCrady and Epstein (2004) examined the decisional balance making process in a group of women seeking treatment for alcohol abuse. The participants in the study of Share et al. were mostly found to be in the precontemplation, contemplation and action stages. Share et al. juxtaposed data from individuals in the precontemplation stage with data from individuals in the action stage and demonstrated how individuals in the former stage are likely to have more perceived costs associated with changing their behavior compared to perceived benefits of change, whereas individuals in the action stage were more likely to have perceived benefits that greatly outweigh the perceived costs of changing their behavior. These findings demonstrate that the stages of change theory is very much appropriate to the development of interventions in substance abuse treatment, which is important considering there appears to be a paucity of research that demonstrates the application of this theory in real world settings.

Another development that allowed clinicians, as well as researchers, to gain a better understanding of individuals seeking substance abuse treatment was the development of the Stages of Change and Treatment Eagerness Scales (SOCRATES). The SOCRATES, developed by Miller and Tonigan (1996), is used to measure the stages of change in individuals based on their scores on three scales, Taking Steps, Ambivalence and Recognition. One study, conducted by Gossop, Stewart and Marsden (2006),

demonstrates the use of the SOCRATES to evaluate the characteristics and behaviors of those seeking substance abuse treatment. Gossop et al. conducted a longitudinal study looking at individuals initiating substance abuse treatment for illicit drugs and their subsequent treatment outcomes. Gossop et al. suggest that an individual scoring high on the Recognition scale is often associated with more frequent use of the illicit substances, as well as higher rates of anxiety and depression in the reporting individual. The Recognition scale captures the awareness of negative consequences in the person's life that have been caused by their use of substances, which Gossop et al. suggest that the more an individual uses substances, the more negative consequences they are likely to encounter. Gossop et al. also suggest that higher scores on the Taking Steps scale are correlated with less frequent use of illicit substances, suggesting these individuals who are taking steps are more likely to decrease their substance use.

Cellucci et al. (2006) used the SOCRATES as a measure in their study looking at treatment seeking among problematic drinkers. They determined that help seeking was positively correlated with higher scores on the Recognition scale, suggesting that individuals recognizing more problems due to their use are more likely to seek substance abuse treatment. Furthermore, Dench and Bennett (2000) suggest the SOCRATES has implications for use to develop interventions to more effectively assist a client in their substance abuse recovery. For instance, if a client is demonstrating ambivalence, the SOCRATES is likely to capture evidence of his or her ambivalence, and appropriate interventions can be implemented, such as the Motivational Interviewing technique of the decisional balance.

While the aforementioned evidence is suggestive that the SOCRATES could

easily assist clinicians and researchers, there is some debate about how well the SOCRATES captures the latent constructs that it claims to. Maisto et al. (1999) suggest that the three-factor structure of the SOCRATES is relatively unstable, and that a two-factor structure is more appropriate. More specifically, Maisto et al. found that Miller and Tonigan's Ambivalence and Recognition scales could be combined into one scale, AmRec, giving the SOCRATES two scales of AmRec and Taking Steps. Maisto et al. attribute this change in SOCRATES structure to the fact that Miller and Tonigan's norming sample was homogenous in terms of their substance use severity and other problems they were experiencing, giving rise to the three scales. A study done by Burrow-Sanchez and Lundberg (2007) supported the findings of Maisto et al. and found that a modified 19-item version of the SOCRATES scale, containing the two factors of Ambivalence and Recognition (AMREC) and Taking Steps, was a better measure to fit the needs of an indigent adult population. Furthermore, this study found that this modified scale was useful in a population where other drugs were abused in addition to alcohol.

Other critiques of the SOCRATES have focused not as much on the structure of the scale, but on how well the scales can capture client characteristics. Caldwell (2002) suggests that individuals are more inclined to make changes in their behaviors before they are willing to acknowledge having a problem. The scores on the SOCRATES for these individuals would therefore indicate that they are high on the Taking Steps scale but low on the Recognition scale. Because of their high score on the Taking Steps scale, they would likely be considered in the action stage of change, although cognitively they may be more precontemplative or contemplative. This could be detrimental to an individual

entering substance abuse treatment, as the client may not be as prepared for treatment as their SOCRATES scores suggest. DiClemente, Doyle and Donovan (2009) also suggest that an individual expressing a readiness to change their substance use patterns is not the same thing as individual expressing a readiness for substance abuse treatment. Given these findings, it would suggest that the SOCRATES be interpreted with careful consideration and assumptions about an individual's readiness for substance abuse treatment should not be solely based on their scores.

Apart from considering the stages of change and other motivational and readiness factors, different client characteristics may play a role in the individual's follow through with their substance abuse treatment referral. Given the pervasiveness of motivation and readiness on other personal characteristics, it is difficult to completely separate out the effects of these personal factors with the effects of motivation and readiness, although there is some literature with compelling evidence suggesting otherwise. Despite evidence that client demographics and background are not consistent predictors of substance abuse treatment retention, other literature suggests that these client characteristics offer unique contributions and play an important role in determining if an individual will follow through with a substance abuse treatment referral (De Leon et al., 1997).

One study that analyzed a database of individuals seeking treatment for marijuana dependence found that being younger, unmarried, unemployed, less education and non-white were correlated with prematurely dropping out of substance abuse treatment (Vendetti et al., 1997). Given the individual characteristics discussed by Vendetti et al., it could be posited that these individuals fail to initiate treatment due to exhibiting more impulsive behavior that is characteristic of individuals with younger chronological ages

and fewer social and occupational obligations. Brecht, Greenwell and Anglin (2005) also found that a lower educational achievement and a younger age were correlated with individuals being less likely to initiate substance abuse treatment for methamphetamine abuse. Thompson, Hunt and Issakidis (2004) obtained self-reports from individuals regarding their reasons for delaying their substance abuse treatment. Findings of this investigation indicate that oftentimes a fear of stigma associated with receiving mental health counseling provide justification for not seeking substance abuse treatment. Thompson et al. also discovered that many individuals admitted to delaying seeking treatment for an average of 8 years after they began to notice negative consequences due to their substance use. The findings of Thompson et al. could give some interpretation to the findings of Vendetti et al. and Brecht et al. by suggesting that younger individuals could be delaying their treatment seeking due to either perceived stigma associated with substance abuse treatment or not recognizing the problematic nature of their substance use.

Another demographic variable that is frequently researched in the substance abuse field is that of legal referral to substance abuse treatment. Weisner et al. (2009) looked at a sample of individuals who were mandated by their employer to receive substance abuse treatment and compared these individuals to those who were voluntarily seeking substance abuse treatment. They concluded that those individuals mandated to receive substance abuse treatment had similar outcomes to those who were receiving treatment voluntarily. Weisner et al. also discovered that oftentimes the individuals mandated to receive treatment were less motivated than those who were voluntarily, but this motivation contributed little to differences in the overall success and completion of

treatment. Stevens et al. (2006) found similar results in that individuals who are legally referred to complete substance abuse treatment did not differ much from individuals who were voluntarily seeking substance abuse treatment. Interestingly, De Leon, Melnick, Kressel and Jainchill (1994) found that the most consistent predictor of retention in substance abuse treatment was legal referral, with individuals who are legally referred averaging more days in treatment than those individuals with voluntary admission at a 30-day follow-up. As these studies demonstrate, there is some discrepancy in the literature about the significance of various demographic characteristics and their role in an individual seeking and completing substance abuse treatment.

Aside from considering demographic characteristics, much attention has been given to attempting to determine differences between individuals endorsing various primary drugs of choice, and how they relate to an individual's likelihood of initiating substance abuse treatment. De Leon et al. (1997) found that there were no significant differences amongst the different drugs of choice in reference to the individual's motivation and readiness for treatment, or in the individual's overall retention in the substance abuse treatment program. De Leon et al. posited these findings indicate that treatment interventions should target personal attributes (i.e., motivation and readiness) and give less focus to differential treatment of drugs of choice (i.e., proclamations that one substance is more addictive than another substance).

While De Leon et al. (1997) suggest there is no difference in treatment attendance amongst the users of different drugs of choice, other literature suggests otherwise. Weisner et al. (2001) suggest that individuals seeking substance abuse treatment for alcohol dependence are more likely to attend treatment than those individuals seeking

treatment for other drug dependencies. Weisner et al. attributed this difference to differing motivation levels, although they did not discuss other factors that could be contributing to this difference. In contrast, Sinha, Easton, Renee-Aubin and Carroll (2003) examined probation-referred individuals seeking substance abuse treatment for marijuana use and found that individuals specifying marijuana as their drug of choice are less likely to return and initiate their substance abuse treatment than individuals endorsing other drugs of choice. Sinha et al. additionally indicate that individuals endorsing marijuana as their drug of choice have lower motivation to change their substance use and to attend treatment, and are more likely to be in the precontemplation stage of change, than individuals endorsing other drugs of choice.

Stephens et al. (2004) and Stephens, Roffman, Fearer, Williams and Burke (2007) also support the findings that individuals specifying marijuana as their drug of choice are typically under-represented in the substance abuse treatment population. Stephens et al. (2007) suggest this underrepresentation is due to marijuana users not being able to afford treatment, not being ready to stop using marijuana and a fear of stigma associated with receiving substance abuse treatment. While these are compelling reasons for not initiating substance abuse treatment, Budney, Radonovich, Higgins and Wong (1998) suggest that marijuana users are more ambivalent about changing their substance use and are less confident in their ability to stop using marijuana when compared with individuals seeking substance abuse treatment for cocaine use. Budney et al. also highlights that the lifetime prevalence for marijuana dependence is highest of all the illicit drugs, making it of concern that these individuals have the lowest representation in substance abuse treatment. Additionally, Budney et al. concluded that individuals seeking substance

abuse treatment for marijuana use are more ambivalent about receiving treatment because they are likely to feel that their substance problem is different from that of other illicit drugs, and are more likely to believe that the available treatment will not be beneficial. This study also suggests that marijuana users are less likely to experience some of the significant negative consequences that users of other drugs may experience (i.e., overdose, severe physical addiction) and therefore are less likely to see a substantial need for receiving substance abuse treatment. Interestingly, individuals espousing marijuana as their primary drug of choice are more likely than individuals indicating alcohol as their primary drug of choice to report a secondary or tertiary problematic substance, making it a larger concern that these individuals are often underrepresented in the treatment population (Urbanoski, Strike & Rush, 2005).

In looking at factors that prompt an individual to seek substance abuse treatment, Ross et al. (2005) suggest that individuals are likely to be experiencing health-related concerns. They examined various characteristics of individuals seeking substance abuse treatment for heroin dependence and found that individuals experiencing complications due to injecting the substance or overdosing on the substance were more likely to seek treatment than individuals who had not experienced these complications. Neale and Robertson (2005) found similar results when looking at individuals seeking substance abuse treatment for heroin addiction. Many participants in this study reported experiencing at least one overdose in the 90 days prior to their treatment entry. Additionally, the individuals who had recently experienced overdoses were more likely to have used other substances in addition to heroin, such as cocaine and amphetamines. McBride et al. (1994) found that among cocaine and marijuana users seeking substance

abuse treatment, health concerns were a more important determining factor in successfully initiating substance abuse treatment than that of legal referral or other demographic characteristics.

These findings on the differential rate of treatment seeking for users of various drugs of choice illustrate the previously mentioned idea that the acknowledgment of the negative consequences of substance use and the increased problem recognition can motivate individuals to seek substance abuse treatment. These findings also suggest that if an individual is not experiencing acute, negative effects from their substance use they are likely to not seek substance abuse treatment. For example, Proudfoot and Teesson (2002) discovered that many individuals with alcohol dependence do not perceive themselves as having a significant problem that would require treatment. This finding could be attributed to the social acceptability of alcohol use, and the failure of individuals to recognize their alcohol use as problematic because others they know also drink. Similarly, Agostinelli, Floyd, Grube, Woodall and Miller (2004) conducted a study on undergraduate students at a university and determined that individuals are likely to compare the amount of alcohol they consume with the amount of alcohol they perceive others as consuming. As a result, if an individual sees others consuming more alcohol than they do, they are less likely to believe that their own use is problematic.

In consideration of the available literature and theories discussing behavioral changes, it would appear that the field of substance abuse needs to more efficiently overcome the challenges that the use of waitlists creates for individuals placed on them. While several methods and interventions have been suggested, one intervention gaining appeal and acknowledgement is the use of interim groups, or groups that individuals can

attend while they are awaiting substance abuse treatment. There is presently a paucity of literature on the use of interim groups and similar interim strategies, although the evidence from the available literature appears promising. One such study was looking individuals seeking treatment for heroin dependence (Schwartz et. al., 2006). Schwartz et al. evaluated individuals who were given an interim treatment of methadone versus individuals who were placed on a waitlist without receiving any interim assistance or attention until their entry to treatment. Findings indicate that the individuals who received the interim methadone were not only more likely to attend treatment than those solely on the waitlist, but the individuals receiving methadone were also more likely to reduce their use of heroin and avoid criminal behaviors. Schwartz et al. concludes that some of these findings could be attributed to the methadone individuals receiving case management, which served as additional support as they awaited their admission to treatment.

Highfield, Schwartz, Jaffe and O'Grady (2007) also looked at individuals receiving interim methadone treatment while awaiting substance abuse treatment and found similar results to those of Schwartz et al., such as a decrease in substance use and a higher rate of initiation to treatment. In the study conducted by Highfield et al., no psychosocial services were offered in the interim between initial contact and treatment entry, although the individuals had limited contact with supportive others while obtaining their methadone. Similarly, a study conducted by Yancovitz et al. (1991) looked at individuals on a waitlist to receive methadone maintenance. This study found that participating in interim groups allowed these individuals to decrease their use of heroin, and it also made it more likely that these individuals would continue into treatment. The

individuals that Yancovitz et al. investigated also received limited services that helped to educate the potential clients as well as limited counseling services that were conducted in an informal manner. Individuals in this study participated in interim services for approximately one month before their entry into treatment. Criticism about the interim services studied by Yancovitz et al. suggest that these services do not address social and vocational needs that are pertinent to individuals seeking substance abuse treatment. Yancovitz et al. respond to this criticism by suggesting these interim services provide a benefit to individuals awaiting treatment, and the lack of specific services does not appear to make a significant difference. Goehl, Nunes, Quitkin and Hilton (1993) suggest that social support plays a key factor in successfully initiating and completing substance abuse treatment. This finding would suggest that individuals, such as those studied by Yancovitz et al., who are around and interacting with others in their similar situation are likely to gain more social support and increased subjective well-being than individuals who do not have these interpersonal connections.

In another study looking at interim strategies to support individuals awaiting substance abuse treatment, Ravarino, Gardner, Hill and Lundberg (2008) looked at methamphetamine users who were attending pretreatment Interim Groups as they waited for treatment. The Interim Groups in the study conducted by Ravarino et al. were different from the services discussed in the previous studies, and these groups more comparable to pretreatment support groups that are readily available for individuals awaiting substance abuse treatment. Ravarino et al. found that attending between 5 and 24 of these groups helped to predict the user's later attendance in treatment, and that attending less than 4 groups or more than 24 groups was not predictive of treatment

attendance. In these groups, a motivational interviewing philosophy was used to help encourage increased motivation in these treatment seekers.

The findings of Ravarino et al. (2008) suggest that Interim Groups can help to increase the likelihood that methamphetamine users will initiate substance abuse treatment. Interim Groups serve as a way for abusers who are waiting for substance abuse treatment to gain support for changing their behavior and also gain strategies to help facilitate that change. This evidence suggests that these groups are beneficial for methamphetamine users, indicated by the more Interim Groups that the substance user attends, the more likely that he or she will attend treatment (Ravarino et al., 2008). More research needs to be conducted to see if this same effectiveness applies to users of other drugs, such as alcohol, marijuana, cocaine and heroin.

Limitations of the Available Research

The current literature in the field addresses numerous aspects of the differential rates of treatment seeking among individuals with preferences for different drugs of choice, as well as from different demographic backgrounds. The available research also addresses the imminent danger of using waitlists and the subsequent failure of treatment initiation. Additionally, this literature expresses the importance of exploring ambivalence and improving motivation, although this task is often daunting to complete while individuals are on waitlists. In evaluating the current literature in the field, there appears to be a paucity of research addressing how motivation fluctuates from initial treatment seeking to the actual initiation of therapy, and what personal factors are likely to contribute to the waning or sustaining of motivation over time.

Purpose of the Present Study

The purpose of the current study is to look at the factors that predict an individual's initial entrance into treatment. Specifically the influence between that of demographics, an individual's preferred drug of choice, their attendance at Interim Group and how they relate to that individual's motivation to follow through with substance abuse treatment, as measured by the scores on the SOCRATES scales. Research questions: 1) Will primary drug of choice predict entrance into treatment? 2) Will the SOCRATES scales (Ambivalence, Recognition and Taking Steps) be a better predictor of entrance into treatment compared to that of demographics or number of Interim Groups attended?

CHAPTER 2

METHODS

Participants

The participants in this study were individuals referred for substance abuse treatment and were seeking publicly funded substance abuse treatment in a medium-sized city in a Mountain West State. They had been referred to attend Interim Groups through the Interim Group Services (IGS) program while awaiting admission to substance abuse treatment programs. The participants attended Interim Groups from April 1, 2006 through April 1, 2007. Only individuals reporting alcohol, methamphetamine, heroin, cocaine or marijuana as their primary drugs of choice were considered, as these were the largest reported categories for primary drug of choice. These Interim Group attendees varied in their length of time on waitlists and also in the number of Interim Groups that they attended.

Setting

Interim Groups

Interim Group Services (IGS) are offered 6 days per week and all individuals seeking publicly funded substance abuse treatment are required to attend at least one

group. These groups help to provide support and guidance to individuals who are preparing to enter substance abuse treatment. They are conducted using a Motivational Interviewing philosophy, harm reduction education is provided when needed and group support is emphasized. Ideally participation in Interim Group helps to build on the individual's autonomy, and encourage them to find their own resources for change by using their internal motivation to change their behavior. The group support allows the individual to receive encouragement and help from other group members and there is also the expectation that group members will help each other take accountability for their treatment goals.

Procedures

SOCRATES

A modified version of the SOCRATES was administered each time the individual attended an Interim Group to assess how much the individual believed they had a problem with drugs or alcohol and if they perceived a need to change their behavior (Miller & Tonigan, 1996; See Appendix A). For this study, completed SOCRATES information from April 1, 2006 to April 1, 2007 was used and only the SOCRATES completed at the individual's first Interim Group attendance was evaluated. Participants completed a 27-item questionnaire where they were instructed to use a 5-point scale to state how much they agree with the statements (1= strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree). Before answering these statements, participants were instructed to complete personal information including stating their primary drug of choice and other drugs they were currently using. Participants were also asked to rate

themselves on a 5-point scale whether they came to Interim Group by choice, with one being ‘not at all,’ three being ‘somewhat’ and five being ‘totally.’ This questionnaire also contained a section asking the participant if this was the first Interim Group that they had attended. For participants who had attended interim groups before, the questionnaire asked how many days it had been since the last Interim Group attended and how many days since last coming to Interim Group that they used alcohol or drugs. This questionnaire was adapted from Miller and Tonigan’s (1996) 19-item SOCRATES to use in the Interim Group setting; therefore, some wording was changed to better capture the motivation of those not reporting alcohol as their drug of choice, as well the addition of eight items from the University of Rhode Island Change Assessment (URICA). While developing the SOCRATES, Miller and Tonigan (1996) obtained normative data in an outpatient setting and the measure was normed on a largely White, male population with an average age of 38 years old.

The SOCRATES measures the five stages of the Transtheoretical stages of change model, assessing the individual’s motivation in the different stages (Miller & Tonigan, 1996). The SOCRATES is used to assess the individual’s acknowledgement of an alcohol or drug problem and their perceived need to change to change his or her drinking or drug use. The SOCRATES contains three subscales: 1) Taking Steps, 2) Recognition and 3) Ambivalence. Taking Steps addresses the Action and Maintenance stages of the stages of change theory, examing the changes that individuals are making to alter their problem behavior. The Recognition scale addresses the awareness users have of the problems that are caused by their substance use. And finally, the Ambivalence scale captures the user’s evaluation of the pros and cons of his or her continued alcohol or

drug use, similar to the Contemplation stage in the stages of change theory (Miller & Tonigan, 1996).

In scoring the SOCRATES, a score of below 15 is preferable on the Ambivalence scale, as this scale is reverse-scored, and a lower score is suggestive of individuals being aware of the negative consequences due to their substance use. A score of above 33 on the Recognition scale is preferable and indicates individuals acknowledge they are experiencing negative consequences due to their substance use and are expressing a desire to change that behavior. A score of above 33 on the Taking Steps scale is also preferable and indicates the individual is making changes in substance use behaviors.

Demographics

Demographic information was collected the first time the individual attended an Interim Group (See Appendix B). This information included the substance abuser's age, race, ethnicity, education level completed, employment status, military services, marital status, who referred him or her to the agency and who needed to know that he or she was attending Interim Groups. This information also included the substance abuser's drug use history, including their drug of choice, how often they used that or other drugs, how they administered their drugs, how long they had been using drugs, if they had received substance abuse treatment in the past, if they were pregnant or had miscarried, if they were HIV positive, any psychological diagnoses they were aware they have, the number of children they have, the number of arrests they had in the past 6 months, their current living situation, their current health insurance status, the age at which they first used alcohol or drugs and their use of tobacco. This demographic form also asked whether or

not the individual was currently participating in any other support groups, such as Alcoholics Anonymous. All of the information on this sheet was for program evaluation purposes and was not provided to the person's treatment agency or probation/parole officer.

Analysis

An analysis of the data was conducted using logistic regression. In this model the dependent variable being measured was whether or not the participant attended treatment ('yes' or 'no'), with a 'yes' response indicating if the individual attended the first day of substance abuse treatment. The 1st day of substance abuse treatment was considered attending treatment if it occurred within 1-190 days after admission at Interim Group Services. This time period was chosen based on the findings from Ravarino et al. (2008) which indicated most IGS clients could have been admitted to substance abuse treatment within 190 days. The predictor variables contain demographic information (e.g., sex, age, race, ethnicity, educational level, marital status and employment status), the type of drug the individual reported as being his or her primary drug of choice, the individual's reported motivation as reported in the scales of the SOCRATES questionnaire, and the number of Interim Groups the individual attended. These predictor variables were used to determine the percentage of variance that could be explained in the dependent variable and helped rank the relative importance of the different independent variables (Tabachnick & Fidell, 1996). Logistic regression helps to estimate the likelihood of a certain event occurring, so in the case of the present study, helping to predict which factors influenced an individual's entry into treatment. More specifically, this model

helped to demonstrate how likely the observed values of the dependent variable can be predicted from the observed values of the independent variable. The goal of logistic regression is to correctly predict the category of outcome for individual cases, so whether or not the participants make it to treatment. This method of analysis provided knowledge of the relationships and strengths among the variables in this study (Tabachnick & Fidell, 1996).

CHAPTER 3

RESULTS

Dataset

This study originally consisted of 2,096 participants from an extant dataset of a community sample of individuals seeking substance abuse treatment services. Participant demographic data were matched with available SOCRATES data, which resulted in the elimination of 906 participants who did not provide SOCRATES data. Reasons for these participants not providing SOCRATES data are unknown. Furthermore, only participants specifying alcohol, marijuana, methamphetamine, cocaine and heroin as his or her primary drug of choice were considered in this study, and participants specifying other drugs of choice were eliminated. Since this study is replicating the study conducted by Ravarino et al. (2008), the present study focused only on variables that were considered in the previous study, and all other variables were eliminated. Additionally, 395 participants were eliminated because they were missing at least half of demographic data or the SOCRATES data and another 22 participants were eliminated as outliers in various demographic or SOCRATES categories. This resulted in a final dataset consisting of a sample of 773 participants with complete information on demographic and SOCRATES variables. Complete data were necessary for comparisons in the analyses of this study.

Descriptive Statistics

Descriptive statistics were calculated for the final sample of 773 participants in this study. The descriptive statistics for this sample included means and standard deviations (or frequency analysis) for the following variables: admission to treatment, sex, referral source, employment status, racial background, ethnic background, marital status, level of education, number of interim groups attended, drug of choice, frequency of substance use and SOCRATES scales. Results from the descriptive statistics indicated that the participants in this sample were largely male (69.7%), White (78.5%) and unemployed (60.4%) and the mean age of the population was 33.65. Only 40.4% of participants attended the 1st day of substance abuse treatment, indicating that the majority of the sample (59.6%) did not initiate their recommended substance abuse treatment. More specific descriptive statistics for this sample are summarized in Table 1.

Descriptive statistics also indicated that the sample was largely composed of methamphetamine users (34.3%) who had not used the drug in the 30 days prior to their admittance at Interim Group Services (IGS) (47.0%). These results are summarized in Figure 1 and Figure 2.

A descriptive analysis of the SOCRATES scales illustrates that the majority of the study sample had low problem Recognition, low Ambivalence and were at varying levels of Taking Steps. An interpretation of the SOCRATES scale scores is presented in Table 2 and the results of these scales are further illustrated in Table 3.

Logistic Regression – Research Question #1

Will primary drug of choice predict entrance into treatment?

Data were examined prior to analysis following these steps: A preliminary linear regression was conducted to examine multicollinearity and to calculate Mahalanobis' Distance. Results from this analysis indicated that multicollinearity was not a problem. Results indicated that no outliers were identified as exceeding the Chi Square cutoff criteria, and, therefore, no participants were eliminated. SPSS identified 43 cases as missing drug of choice data, resulting in 730 participants in this analysis.

A binary logistic regression was then performed on data for 730 participants. In order to examine the contribution of each category of the drug of choice variable, the Enter method was selected and the treatment variable was used as the dichotomous dependent variable (0= no treatment attendance and 1= treatment attendance). The drug of choice variable was entered into the model using the indicator contrasting method and used the first category, or Alcohol, as the reference category that the other drugs were compared against. Alcohol was used as reference category because it was the second largest category of primary of drug of choice and appeared to include a reasonable number of participants in which to compare the other drug of choice categories to. The results of this analysis are summarized in Table 4.

None of the predictor variables were significant. The nonsignificance was supported by a general lack of model fit as evidenced by large model fit indices (-2 Log Likelihood= 983.716) which indicated that drug of choice was a poor fitting model for predicting substance abuse treatment entry. In logistic regression, the lower the value of the -2 Log Likelihood statistic, the better fit the model is for the data (Mertler &

Vannatta, 2005). The Chi-Square statistics (χ^2 (4)= 5.004, p<.287) further demonstrate that this model does not significantly predict group membership. In addition to the model not being a good fit, the model was only slightly more than chance in classifying subjects and predicting group membership, with an overall classification percentage of 61.7%. As can be seen in Table 4, none of the drugs of choices were significant predictors of substance abuse treatment entry, although marijuana appeared to be approaching significance. This indicates marijuana users may be less likely to attend substance abuse treatment than alcohol users, but the small odds ratio of .624 did not provide much additional information on marijuana's ability to predict substance abuse treatment entry.

Table 5 further details the admission to treatment by drug of choice. As can be seen in this table, while each drug of choice varied slightly in the percentage of individuals who made it to treatment, no one drug appeared to have significantly higher rates of treatment attendance. Further, each drug of choice had more individuals not attend treatment than attended treatment.

Logistic Regression – Research Question #2

Will the SOCRATES scales (Ambivalence, Recognition and Taking Steps) be a better predictor of entrance into treatment compared to that of demographics or number of Interim Groups attended?

Data were examined prior to analysis following these steps: A preliminary linear regression was conducted to examine multicollinearity and to calculate Mahalanobis' Distance. Results from this analysis indicated that multicollinearity was not a problem for the demographic, SOCRATES, and number of Interim Group variables. Results from

the Mahalanobis Distance test indicated that the data contained 22 outliers according to Chi-Square cutoff criteria (χ^2 (13, N=773) = 22.36, p<.05). As previously discussed in the dataset section, these 22 participants were identified and eliminated, resulting in a population of 773 in this analysis.

Hierarchical logistic regression was performed on the data using the Enter method, which forces the entry of all variables into the equation regardless of their significant contribution, in order to examine the contribution of each variable. In this analysis, the treatment variable was the dichotomous dependent variable (0= no treatment attendance and 1= treatment attendance), and the independent variables were entered into the analysis in a series of six blocks. All of the independent variables were entered into the model using the indicator contrasting method and used the first category as the reference category.

The logistic regression results are summarized in Table 6. The results indicate that the Interim Group and the Taking Steps scale of the SOCRATES were significant, and no significant predictors were found in the first four blocks of this model. More specifically, Interim Group was found to be a significant predictor of attending substance abuse treatment for all three levels of this variable. Results indicate that the odds of attending substance abuse treatment decreased with an increase in the number of Interim Groups attended. This is evidenced by a decrease in the odds of attending treatment for participants who attended 2-4 Groups (B=-.56, p<.003, *95% C.I.*=.391-.824) by a factor of .568 and a decrease in the odds of attending treatment for participants who attended 5 or more Groups (B=-.418, p<.038, *95% C.I.*=.444-.976) by a factor of .658 compared to those participants who only attended one Interim Group. While Interim Group was

significant, the small odds ratios suggest that this variable offers little predictive value and it is difficult to interpret its impact on predicting substance abuse treatment.

The Taking Steps scale of the SOCRATES was also found to be a significant predictor of attending substance abuse treatment. Results indicate that higher scores on the Taking Steps scale (*B*= .034, *p*<.041, *95% C.I.*= 1.001-1.069) were more predictive of attending substance abuse treatment than were scores on either the Recognition scale or the Ambivalence scale. More specifically, results indicate that as a participant's scores increased by one-unit on the Taking Steps scale, their odds of attending substance abuse treatment increased by a factor of 1.035. As previously mentioned with the Interim Group results, the small size of the Taking Steps odds ratio suggests it offers little predictive value for determining a participant's admission to substance abuse treatment.

Table 1
Descriptive and Frequency Statistics

Variable	Categories	Frequency	% of Sample
Admission to Treatment	Yes	312	40.4
	No	461	59.6
Sex	Male	539	69.7
	Female	234	30.3
Referral Source	Legal	336	43.5
	Nonlegal	437	56.5
Employment Status	Employed (Full or Part Time)	306	39.6
	Unemployed	467	60.4
Racial Background	White	607	78.5
	Non-White	166	21.5
Ethnic Background	Hispanic	133	17.2
	Non-Hispanic	640	82.8
Marital Status	Married	88	11.4
	Not Married	685	88.6
Level of Education	Less Than High School	217	28.1
	High School Diploma or GED	308	39.8
	Some College or Voc Training	209	27.0
	College Graduate or Above	39	5.0
Number of Interim Groups Attended	1 Group	338	43.7
	2-4 Groups	231	29.9
	5 or More Groups	204	26.4

Note: Non-White = American Indian, Asian American, African American and Pacific Islander

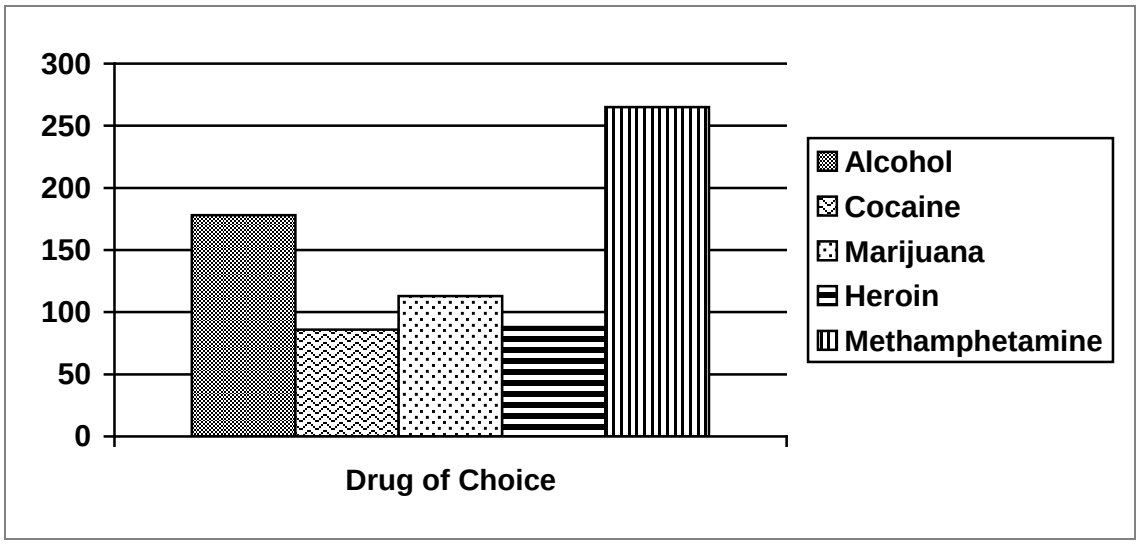

Figure 1
Drug of Choice Frequency

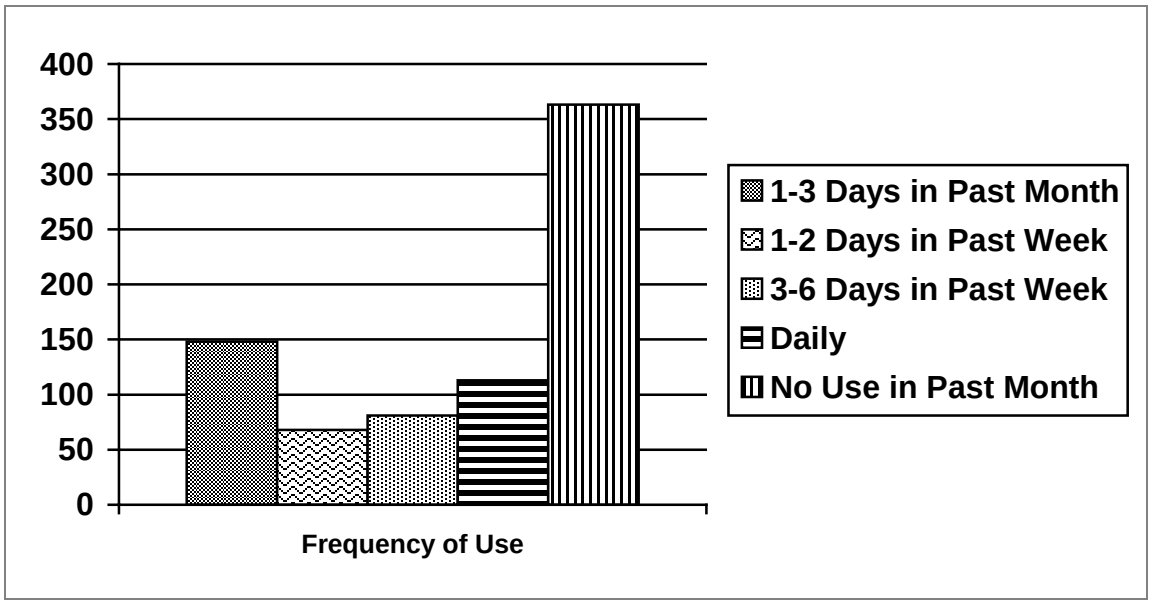

Figure 2
Frequency of Substance Use

Table 2
SOCRATES Scales Interpretation

Variable	Very High	High	Medium	Low	Very Low
Recognition	N/A	34-35	31-33	27-30	7-26
Ambivalence	18-20	16-17	14-15	9-13	4-8
Taking Steps	37-40	34-36	31-33	26-30	8-25

Note: The Ambivalence Scale is reverse-scored and a lower score is preferable.

Table 3
SOCRATES Scales Descriptive Statistics

Variable	*N*	Minimum	Maximum	Mean	SD
Recognition	773	7	35	28.29	6.807
Ambivalence	773	4	20	12.56	3.982
Taking Steps	773	8	40	33.79	5.666

Note: The Ambivalence Scale is reverse-scored and a lower score is preferable.

Table 4

Logistic Regression Analysis of Drug of Choice Variable Influencing Treatment Attendance

Predictor Variable	*B*	Wald	*d.f.*	*p*	Odds Ratio
Alcohol		4.892	4	.299	
Cocaine	-.080	.091	1	.763	.923
Marijuana	-.471	3.526	1	.060	.624
Heroin	.112	.183	1	.669	1.118
Methamphetamine	-.126	.411	1	.522	.882
Constant	-.248	2.705	1	.100	.780

Dependent Variable = treatment attendance (0= No, 1= Yes)

Table 5

Frequencies of Treatment Admission by Drug of Choice

Predictor Variable	Yes (%)	No (%)	*N*
Alcohol	43.8	56.2	178
Cocaine	41.9	58.1	86
Marijuana	42.5	57.5	87
Heroin	46.6	53.4	88
Methamphetamine	40.8	59.2	265

Dependent Variable = treatment attendance (0= No, 1= Yes)

Table 6

Logistic Regression Analysis of Variables Influencing Treatment Attendance

Predictor Variable	*N*	*B*	Wald	*d.f.*	*p*	Odds Ratio
Block 1: Demographics						
Age	773	.015	3.184	1	.074	1.015
Sex	773	-.146	.743	1	.392	.864
Racial Background	773	.115	.265	1	.607	1.122
Ethnic Background	773	-.250	1.071	1	.301	.779
Block 2: Socioeconomic						
Marital Status	773	.062	.066	1	.798	1.063
Employment Status	773	-.165	.954	1	.329	.848
Education Level						
Less Than High School	217		7.535	3	.057	
High School or GED	308	.635	2.575	1	.109	1.869
Some College or Voc. Training	209	.421	1.237	1	.266	1.524
College Graduate or Above	39	.080	.043	1	.835	1.083
Block 3: Frequency of Use						
Frequency of Use						
1-3 days in past month	148		4.948	4	.293	
1-2 days in past week	68	-.316	2.190	1	.139	.729
3-6 days in past week	81	-.429	2.030	1	.154	.651
Daily	113	-.479	2.759	1	.097	.619
No use in past month	363	-.133	.252	1	.615	.875

Dependent Variable= treatment attendance (0= No, 1= Yes)

***The Ambivalence Scale is reverse-scored and a lower score is preferable.

*p<.05 **p<.001

Table 6 continued

Predictor Variable	*N*	*B*	Wald	*d.f.*	*p*	Odds Ratio
Block 4: Referral Source						
Referral Source	773	-.197	1.326	1	.249	.821
Block 5: Interim Group						
Number of Interim Groups						
1 Group	338		9.124	2	.010*	
2-4 Groups	231	-.566	8.887	1	.003**	.568
5 or More Groups	204	-.418	4.325	1	.038*	.658
Block 6: SOCRATES Scales						
Recognition	773	.024	2.584	1	.108	1.024
Ambivalence***	773	-.039	3.528	1	.060	.962
Taking Steps	773	.034	4.190	1	.041*	1.035

Dependent Variable= treatment attendance (0= No, 1= Yes)
***The Ambivalence Scale is reverse-scored and a lower score is preferable.
*p<.05 **p<.001

CHAPTER 4

DISCUSSION

The purpose of this study was to examine whether drug of choice, demographics, Interim Group attendance and the SOCRATES scales predict substance abuse treatment attendance. As previously mentioned, one of the biggest challenges in the substance abuse field is that of individuals who have been referred for substance abuse treatment not initiating that treatment (Donovan et al., 2001; Weisner et al., 2001). Numerous explanations could be postulated as to why treatment initiation does not occur, and this study looked at the predictive value of multiple variables that could influence treatment attendance. One goal of this study was to expand on the study conducted by Ravarino et al. (2008), which only looked at individuals seeking treatment for methamphetamine use and did not evaluate SOCRATES data. Ravarino et al. found that attending more Interim Groups was more predictive of an individual entering substance abuse treatment than were demographic variables. Ravarino et al. did not look at the predictive value of different drugs of choice, nor did they evaluate the predictive value of the scales of the SOCRATES. The present study included a larger sample size than that of Ravarino et al. and also looked at individuals seeking treatment for alcohol, heroin, cocaine, marijuana and methamphetamine use, as well as evaluating the predictive value of the three

SOCRATES scales in determining substance abuse treatment entry. The following hypotheses were tested:

Research Question #1: Will primary drug of choice predict entrance into treatment?

Primary drug of choice was not found to be a significant predictor of substance abuse treatment attendance. While not significant, participants' specifying the various primary drugs of choice did demonstrate some differences in their rates of treatment attendance. Compared to participants who specified alcohol as their primary drug of choice, participants specifying heroin as their primary drug of choice were slightly more likely to attend treatment, as evidenced by their slightly higher percentage of treatment attendance when compared with the participants with other primary drugs of choice. In a similar comparison, participants specifying marijuana as their drug of choice were less likely to attend treatment than users of other drugs. Literature is supportive of the findings in this study, as demonstrated by De Leon et al. (1997), who looked at a sample of individuals seeking residential substance abuse treatment and found that there were few differences between the various drugs of choice in terms of treatment retention and initial motivation and readiness for substance abuse treatment. These findings, along with the findings from the present study, further suggest that drug of choice would not be a consistent predictor of treatment attendance, and it is likely that other factors contribute to an individual attending treatment. Furthermore, the present study examined individual's primary drug of choice and did not take into consideration the possibility that these individuals could be poly-substance users and may have differing reasons for not initiating their substance abuse treatment.

One possible alternative explanation for what prompts individuals to initiate substance abuse treatment was posited by Pollini, O'Toole, Ford and Bigelow (2006). They found that the most frequent reason given for expressing an interest in attending substance abuse treatment was that the participants were "tired of using," suggesting that these individuals experienced a subjective desire to move on with their lives and stop using substances. The participants in the study conducted by Pollini et al. specified primary drugs of choice similar to those being considered in the present study, suggesting that regardless of the primary drug of choice, attitudes about use may be a more important predictor of treatment attendance. In applying these findings to the present study, it could be suggested that the majority of the participants in this study were not "tired of using" and were therefore not prepared nor motivated to initiate substance abuse treatment at this time.

Research Question #2: Will the SOCRATES scales (Ambivalence, Recognition and Taking Steps) be a better predictor of entrance into treatment compared to that of demographics or number of Interim Groups attended?

Both Interim Group and the SOCRATES were found to be significant, although both offer little predictive value about substance abuse treatment attendance. More specifically, the Taking Steps scale of the SOCRATES was found to be significant. While both the Interim Group and SOCRATES variables were significant, taking a holistic view of the logistic regression statistics into account, neither of these variables offered much in predictive value regarding an individual's substance abuse treatment attendance. Demographic variables were not found to be significant predictors of

treatment attendance, although some variables approached significance.

The demographic results found in this study appear to be consistent with previous studies. The literature indicates that demographic variables are not a good predictor of substance abuse treatment attendance, nor can demographic variables offer much descriptive value about an individual's readiness to change (DiClemente et al., 2009; Messina, Burdon, Hagopian & Prendergast, 2006; Ravarino et al., 2008). Additionally, Weisner et al. (2009) found that individuals who were mandated to receive substance abuse treatment had similar outcomes to those who voluntarily sought treatment. Similar to the findings found by Weisner et al., the results of the present study indicate that participants who were legally referred to substance abuse treatment had treatment attendance rates that were similar to those who were voluntarily seeking substance abuse treatment, and no significant differences were found between the two groups. Furthermore, it should be noted that in the present study, participants self-reported if they were legally referred, and it is possible that some participants may not have been forthcoming with this information, thereby not providing an accurate number of participants who were legally referred and who were voluntary.

As mentioned above, the number of Interim Groups a participant attended was found to be more predictive of their subsequent substance abuse treatment attendance than their scores on the three SOCRATES scales. Interestingly, the findings in the current study indicate that the more Interim Groups an individual attends the less likely they are to attend substance abuse treatment, which is counter to the results that Ravarino et al. (2008) found, in which attending between 5 and 24 groups made it more likely that the individual would attend substance abuse treatment. The current study found that

attending one Interim Group was more predictive of substance abuse treatment attendance than attending more than one group, although it is important to consider that the modal number of Interim Groups attended was one. These discrepant findings between the present study and the study conducted by Ravarino et al. could be due to the larger sample size in the present study, as well as the inclusion of participants with primary drugs of choice other than just methamphetamine. Additionally, differences exist between the participants in the study by Ravarino et al. and the present study, as individuals are now referred to Interim Groups from a wider range of referral sources than was the case in the time period that Ravarino et al. considered. It is possible that these varying referral sources influence the accuracy of the information that the participants provided, such as if there were legally referred, as well as influencing the participants' motivation to follow through with a treatment referral. While there is a paucity of research and literature on the use of interim interventions and groups, it appears that these discrepant findings have larger implications for the use of Interim Groups as well as for the broader field of substance abuse and need to be further explored.

The last noteworthy finding of the present study shows that the Taking Steps scale of the SOCRATES was a significant predictor of substance abuse treatment, suggesting that the more steps the participant is taking to change their substance use behavior, the more likely they are to attend substance abuse treatment. This finding is consistent with the aforementioned drug of choice variable finding that individuals who initiate substance abuse treatment are more likely to be ready to stop using their drug of choice (Pollini et al., 2006). Interestingly, DiClemente (2009) found that initial motivation and readiness

to change have been inconsistent predictors of substance abuse treatment attendance. Applying this finding to the present study, it would suggest that while some participants may have reported Taking Steps to change their substance use when they completed their initial SOCRATES, this motivation may not be long-lasting, and therefore, not sufficient for substance abuse treatment attendance. Further, participants may have considered their initial decision to attend Interim Group as evidence that they are changing their substance use behaviors, which is what the Taking Steps scale is supposed to capture. DiClemente further expounds that readiness to change substance use behaviors is not the same as readiness for substance abuse treatment, implying that some other variable is key. To further elaborate on DiClemente's explanation, Rapp et al. (2003) suggests that problem recognition plays an important role in an individual's motivation, as individuals with more severe substance use problems were found to be more motivated to change their substance use behavior. It could be that the individuals reporting higher scores on Taking Steps also had higher scores on the Recognition scale, although the Recognition scale was not found to significantly predict substance abuse treatment attendance.

Additionally, a study conducted by Fickenscher et al. (2006) found a possible explanation for the Taking Steps scale's significant results in the present study. Fickenscher posits that treatment readiness is determined by behaviors of individuals who are in the action stage of the stages of change, as evidenced by these individuals making a commitment to change their behavior, and ultimately entering a substance abuse treatment program. If the participants in the present study were in the action stage of the stages of change model, it is likely they have made a commitment to change their substance use and they are more expected than other participants to follow through and

attend substance abuse treatment. It appears that the participants' subjective views of their behavioral changes are important, and if they believe they are making changes, such as by attending Interim Group, then they are more likely to stay motivated to attend substance abuse treatment.

And finally, the participants in the present study sample were relatively low on the Ambivalence scale of the SOCRATES, which is indicative of little or no ambivalence about changing substance use behaviors. It is likely that while the three scales of the SOCRATES are considered to be independent, the Ambivalence scale is influenced by a participant's scores on the other scales of the SOCRATES. The sample also appears relatively low on the Recognition scale, suggesting participants may be denying that their substance use has created problems for them, and they are not expressing a desire to change. This could suggest that participants are low on the Ambivalence scale because they do not recognize their substance use as problematic, and they likely feel that they are in control of their substance use. Additionally, Maisto et al. (1999) suggested that the Ambivalence factor of the SOCRATES is relatively unstable, which would help to explain why it was approaching significance in the present study, although the distribution of scores did not seem indicative of why it would be significant. Furthermore, it should be noted that Burrow-Sanchez and Lundberg (2007) found a two-factor model of the SOCRATES, including just the Amrec and Taking Steps scales, to be more efficient for the population being considered in the present study. These findings could have implications for the present study, as the present study used the three-factor model of scoring the SOCRATES due to the lack of availability of a scoring rubric for the two-factor model. Burrow-Sanchez and Lundberg's findings suggest that the

SOCRATES results in the present study are not as accurate as they could have been had results been interpreted with a two-factor model.

Limitations and Future Research

The findings in this study should be interpreted with caution, as several limitations were evident. First, due to the self-report nature of the data, it is possible that participants did not fully disclose information on some questions, such as questions on the demographic form and the SOCRATES pertaining to their current substance use and substance use behaviors, suggesting some participants may have minimized their current use patterns and behaviors. Given the nature of how these data were collected, it was impossible to corroborate the data. A replication of this study with the collection of collateral information, such as from probation or parole officers, or from other significant individuals in the participant's life, would be beneficial to obtain more objective data.

Second, the sample was recruited from a unique population of individuals seeking substance abuse treatment in a medium-sized city in a Mountain West State. These individuals are seeking county subsidized substance abuse treatment, and are likely very different from individuals who are able to afford substance abuse treatment. Consequently, being able to afford substance abuse treatment and not having to wait for county funding to be available could have a significant impact on an individual's motivation and follow through with treatment attendance. Replicating this study in a different setting, such as a different geographic location or including individuals who are not seeking county subsidized treatment, would be interesting in evaluating if the findings of the present study are unique to the sample that was considered, or if these

findings can be generalized to all individuals seeking substance abuse treatment.

Additionally, due to the variables being considered in this study, it is possible that other personal characteristics, such as mental health diagnoses, could have played a role in an individual's decision to enter substance abuse treatment. The present study did not take into consideration previous mental health diagnoses or if the participant had previously attended substance abuse treatment, although both of these circumstances were addressed on the demographic form that each participant completed. Future studies should give more consideration to additional personal characteristics and background information of the participants. For example, one could postulate that if an individual has previously attended substance abuse treatment, this would be a determining factor in their decision to attend substance abuse treatment again, particularly given their perceived experience in any previous treatment as either positive or negative.

And finally, it should be noted that while this study was looking at treatment attendance, as evidenced by the participant attending the 1st day of treatment, this does not suggest that the participant completed their substance abuse treatment after making an initial appearance. Additionally, the timeframe considered in this study looked at the initiation of treatment within 190 days, and it is possible that participants could have initiated their substance abuse treatment after that time. Further, it is possible that participants could have initiated substance abuse treatment without utilizing county funding, and therefore their treatment attendance would not be captured by this treatment attendance data. Future studies should consider whether or not the participants completed the recommended substance abuse treatment once they initiated it. A qualitative approach would lend itself nicely to this task, as the researcher would be able

to take into account the participant's subjective experiences of either completing substance abuse treatment or not.

APPENDIX A

STAGES OF CHANGE READINESS AND TREATMENT

EAGERNESS SCALE (SOCRATES) FORM

Interim Group Data Sheet

Name:_____ Day and date_____

Date of birth:_____ Primary drug of choice (*present or past*):_____

List other drugs/alcohol in use:_____

*Answer the following on the **scale below**:* Did you come to Interim Group today by choice?
(Circle your response)

1----------2----------3----------4----------5
Not at all *Somewhat* *Totally*

Is this your first Interim Group? (circle one) **YES / NO**

IF YES – SKIP TO SECTION II
IF NO – CONTINUE WITH SECTION I

SECTION I - ONLY for clients who have come to Interim Groups BEFORE:

How many days has it been since your last Interim Group? _____

How many of those days since coming to Interim Group have you USED DRUGS OR ALCOHOL? _____

SECTION II – For all clients

SOCRATES Questionnaire

All Interim clients*, whether this is your first time or not, please complete the following questionnaire. There are no right and wrong answers to these questions. Try to be as thoughtful as you can in making your responses. Use the following scale to indicate how much you agree with the statements below.*

1----------2----------3----------4----------5
Strongly disagree Disagree Neutral Agree Strongly agree

*1) _____ I really want to make changes in my drinking/drug use.

*2) _____ Sometimes I wonder if I am a drug-addict / alcoholic.

3) _____ As far as I'm concerned, I don't have any problems that need changing.

*4) _____ If I don't change my drinking / drug use soon, my problems are going to get worse.

*5) _____ I have already started making some changes in my drug use / drinking.

*6) _____ I was using drugs / drinking too much at one time, but I've managed to change my drug use / drinking.

7) _____ I'm not the problem one. It doesn't make sense for me to be here.

*8) _____ Sometimes I wonder if my drinking / drug use is hurting other people.

*9) _____ I am a problem drug-user / drinker.

10)_____ Being here is pretty much a waste of time for me because the problem doesn't have to do with me.

*11)_____ I'm not just thinking about changing my drinking / drug use, I'm already doing something about it.

*12)_____ I have already changed my drug use / drinking, and I am looking for ways to keep from slipping back into my old pattern.

*13)_____ I have serious problems with drinking / drug use.

14)_____ I guess I have faults, but there is nothing that I really need to change.

*15)_____ Sometimes I wonder if I am in control of my drug use / drinking.

*16)_____ My drinking / drug use is causing a lot of harm.

17)_____ I may be part of the problem, but I don't really think I am.

*18)_____ I am actively doing things now to cut down or stop using drugs / drinking.

*19)_____ I want help to keep from going back to the drinking / drug use problems that I had before.

20)_____ All this talk about psychology is boring. Why can't people just forget about their problems.

*21)_____ I know that I have a drug use / drinking problem.

*22)_____ There are times when I wonder if I drink / use drugs too much.

23) _____ I have worries but so does the next person. Why spend time thinking about them?

*24)_____ I am a drug addict / alcoholic.

*25)_____ I am working hard to change my drinking / drug use.

*26)_____ I have made some changes in my drug use / drinking, and I want some help to keep from going back to the way I used to use drugs / drink.

27) _____ I would rather cope with my faults than try to change them.

*Denotes items from the 19-item SOCRATES (Miller & Tonigan, 1996)

APPENDIX B

INTERIM GROUP DEMOGRAPHIC INFORMATION FORM

Interim Group/Recovery Management Services Profile

Please Answer All Questions
If question does not apply to you please mark "N/A" for "not applicable"

Today's Date:_____

First Name:_____ **Middle Name**:_____

Last Name:_____**Date of Birth**:_____

Social Security Number:_____**Gender**: ____M (1) ___F (2)

Home Address:_____
City:_____ **State**:_____ **Zip Code**:_____

Phone Number:_____
What County do you reside in:_____

Race (circle one): (I)

1 Alaskan Native
2 American Indian
3 Asian
4 Black/African American
5 Native Hawaiian/Other Pacific Islander
6 White
7 Other
8 Unknown

Ethnicity (circle one): (J)

1 Not of Hispanic Origin
2 Mexican
3 Puerto Rican
4 Cuban
5 Other Hispanic
6 Unknown

How many years of education have you completed? (circle one) (K)

1	No Schooling	15	High School Diploma (not GED)
2	Kindergarten	16	Vocational Training beyond H.S.
3	1st Grade	17	Special Education (ungraded classes)
4	2nd Grade	18	Baccalaureate Degree (B.S., B.A.)
5	3rd Grade	19	Graduate work (no degree)
6	4th Grade	20	Master's Degree
7	5th Grade	21	Doctorate/Professional Degree
8	6th Grade	22	Post Secondary 1 year
9	7th Grade	23	Post Secondary 2 years (Inc AA degree)
10	8th Grade	24	Post Secondary 3 years
11	9th Grade	25	Post Secondary 4 years + (no degree)
12	10th Grade	26	Other
13	11th Grade	27	Unknown
14	GED		

Have you ever been in the military? (L) _____ Yes (1) _____ No (2)

If you answered "Yes" to military service, <u>circle</u> the one that applies to you: (M)

1 In Reserves or National Guard; Combat
2 In Reserves or National Guard; No Combat
3 Military Dependent
4 On Active Duty; Combat
5 On Active Duty; No Combat
6 Retired from Military
7 Veteran; Other Eras
8 Vietnam Era Veteran; Combat
9 Vietnam Era Veteran: No Combat

Who referred you to this agency? (N)

_____

What other agencies will need to know you're attending Interim Group (agency where you'll receive treatment, AP&P, DCFS etc.) ?

_____

Circle your drug of choice: (O)
Please only choose one, your primary drug of choice, even if you use alcohol and/or other drugs..

1	Alcohol	17	Lorazepam (Ativan)
2	Cocaine/Crack	18	Clonazepam (Klonopin)
3	Marijuana/Hashish	19	Alprazolam (Xanax)
4	Heroin	20	Diazepam (Valium)
5	Methamphetamine	21	Other Benzodiazepines
6	Methylphenidate (Ritalin)	22	Other Sedatives
7	Other Amphetamines	23	PCP
8	Other Stimulants	24	LSD
9	Oxycodone (Oxycontin/Percocet)	25	Other Hallucinogens
10	Hydrocodone (Vicodin/Lortab)	26	MDMA (Ecstasy)
11	Morphine (MS/Contin)	27	Rohypnol
12	Non-prescription methadone	28	GHB/GBL
13	Other Opiates	29	Ketamine (Special K)
14	Barbiturates	30	Over the Counter
15	Other Tranquilizers	31	Other
16	Inhalants	32	Unknown

Have you ever used a needle to administer drugs? (P) _____ Yes (1) _____ No (2)

Are you pregnant? (circle one)

1	Yes
2	No
3	Unknown
4	Does not apply (circle for all males)

Are you HIV positive? (circle one)

1	Yes
2	No
3	Never been tested

<u>PLEASE NOTE</u>: The following information is NOT provided to treatment agencies, parole/probation officers or any other entities. This information is used for <u>Program Evaluation Purposes</u>,

1.) How many times have you been in a substance abuse treatment program? (S)
_____
Include all prior treatments even if you did not complete the program; do not include support groups such as AA, NA or Interim Group.

2.) Have you ever been diagnosed with a psychological/emotional problem? (T)
_____Yes (1) _____No (2)

3.) Are you currently taking any medications specifically for the treatment of a psychological/emotional problem? (U) _____Yes (1)_____ No (2)

4.) How many children do you have? (V) _____
Include all you children even if you do not currently have custody of them.

5.) Are your children currently living with you? (W)
Only include minor children (children under the age of 18).

_____Yes (1) _____ No (2) _____ Some of them (3)

6.) How many times have you been arrested in the last six months? (X)
_____

7.) What is your current marital status? (Y)
(circle one)

1	Married
2	Never Married
3	Separated
4	Divorced
5	Widowed
6	Unknown

8.) What is your employment status? (Z)
(circle one)

1	Employed Full Time
2	Employed Part Time
3	Unemployed
4	Homemaker
5	Student
6	Disabled
7	Other

9.) If you are currently unemployed, how many MONTHS have you been unemployed? (AA) _____

10.) At what age did you first use the drug of choice you listed above? (AB)
_____

11.) How do you usually administer (use) the drug of choice you listed above? (AC)
(circle one)

1	Oral (Swallowed)
2	Smoking
3	Nasal (Snorted, Sniffed)
4	IV Injection
5	Inhalation (Fumes)

12.) How often have you used your drug of choice in the past 30 days? (AD)
(circle one)

1	1-3 days in the past month
2	1-2 days per week
3	3-6 days per week
4	Daily
5	No use in the past month

13.) How many years have you been using your drug of choice? (AE)
_____

14.) Do you have a second drug of choice? (AF)
_____
Refer to the list above and write in your answer. If you do not have a second drug, skip to question #19.

15.) At what age did you first use you second drug of choice? (AG)

_____

16.) How many years have you been using your second drug of choice? (AH)

_____

17.) Circle how you usually use your your second drug of choice: (AI)

1 Oral (Swallowed)
2 Smoking
3 Nasal (Snorted, Sniffed)
4 IV Injection
5 Inhalation (Fumes)

18.) Circle how often you used second drug of choice in the past 30 days? (AJ)

1 1-3 days in the past month
2 1-2 days per week
3 3-6 days per week
4 Daily
5 No use in the past month

19.) Circle your current living situation: (AK)

1 Homeless (shelter, street)
2 Dependent (not paying rent)
3 Independent
4 Unknown

20.) Circle your current health insurance status: (AL)

1 Blue Cross/Blue Shield
2 Medicare
3 Medicaid
4 HMO (for example, IHC)
5 Other
6 None

21.)What is the age that you first <u>ever</u> used any alcohol or drugs? (AM)

_____

22.) Are you currently participating in any other support groups?
For example, AA, NA etc. _____ Yes (1)_____ No (2)

23.) Do you use tobacco? _____Yes (1) _____ No (2)

24.) If you have used tobacco, at what age did you first use tobacco?

_____

25.) If you have used tobacco, circle the number which best describes your tobacco use:

1. Have used/Not current user
2. Occasional Use (less than one cigarette per/day)

3. Regular User (less than two packs a day)
4. Heavy User (two or more packs a day)
5. Use Smokeless tobacco only

Questions 26 and 27 are for females only

26.) Have you ever had a miscarriage? (AO)_____Yes (1) _____No (2)

27.) If you answered yes to question 22, how many miscarriages have you had? (AP)
_____

REFERENCES

Agostinelli, G., Floyd, T., Grube, J., Woodall, G., & Miller, J. (2004). Alcohol problem recognition as a function of own and others' perceived drinking. *Addictive Behaviors, 29,* 143-157.

Bell, J., Caplehorn, J.R.M., & McNeil, D.R. (1994). The effect of intake procedures on performance in methadone maintenance. *Addiction, 89,* 463-471.

Brecht, M.L., Greenwell, L., & Anglin, M.D. (2005). Methamphetamine treatment: trends and predictors of retention and completion in a large state treatment system (1992-2002). *Journal of Substance Abuse Treatment, 29,* 295-306.

Brown, B.S., Hickey, J.E., Chung, A. S., Craig, R.D., & Jaffe, J.H. (1989). The functioning of individuals on a drug abuse treatment waitlist. *American Journal of Drug and Alcohol Abuse, 15* (3), 216-274.

Budney, A.J., Radonovich, K.J., Higgins, S.T., & Wong, C.J. (1998). Adults seeking treatment for marijuana dependence: a comparison with cocaine-dependent treatment seekers. *Experimental and Clinical Psychopharmacology, 6* (4), 419-426.

Burrow-Sanchez, J.J., & Lundberg, K.L. (2007). Readiness to change in adults waiting for publicly funded substance abuse treatment. *Addiction, 332,* 199-204.

Caldwell, P.E. (2002). Drinking levels: Related problems and readiness to change in a college sample. *Alcoholism Treatment Quarterly, 20* (2), 1-15.

Carey, K.B., Purnine, D.M., Maisto, S.A., & Carey, M.P. (1999). Assessing readiness to change substance abuse: A critical review of instruments. *Clinical Psychology: Science and Practice, 6* (3), 245-266.

Carr, C., Xu, J., Redko, C., Lane, D., Rapp, R., Goris, J., et al. (2008). Individual and system influences on waiting time for substance abuse treatment. *Journal of Substance Abuse Treatment, 34,* 192-201.

Cellucci, T., Krogh, J., & Vik, P. (2006). Help seeking for alcohol problems in a college population. *Journal of General Psychology, 133* (4), 421-433.

Cunningham, J., Sobell, L., Sobell, M., & Gaskin, J. (1997). Alcohol and drug abusers'

reasons for seeking treatment. *Addictive Behaviors, 19* (6), 691-696.

De Leon, G., Melnick, G., Kressel, D., & Jainchill, N. (1994). Circumstances, motivation, readiness and suitability (the CMRS scales): Predicting retention in therapeutic community treatment. *American Journal of Drug and Alcohol Abuse, 20* (4), 495-515.

De Leon, G., Melnick, G., & Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among cocaine and other drug abusers. *American Journal of Drug and Alcohol Abuse, 23* (2), 169-189.

Dench, S., & Bennett, G. (2000). The impact of brief motivational intervention at the start of an outpatient day programme for alcohol dependence. *Behavioural and Cognitive Psychotherapy, 28,* 121-130.

DiClemente, C.C., Bellino, L.E., & Neavins, T.M. (1999). Motivation for change and alcoholism treatment. *Alcohol Research and Health, 23* (2), 86-92.

DiClemente, C.C., Doyle, S., & Donovan, D. (2009). Predicting treatment seekers' readiness to change their drinking behavior in the COMBINE study. *Alcoholism: Clinical and Experimental Research, 33* (5), 879-892.

DiClemente, C.C., Schlundt, D., & Gemmell, L. (2004). Readiness and stages of change in addiction treatment. *The American Journal on Addictions, 13,* 103-119.

Donovan, D.M., Rosengren, D.B., Downey, L., Cox, G.B., & Sloan, K.L. (2001). Attrition prevention with individuals awaiting publicly funded drug treatment. *Addiction, 96,* 1149-1160.

Fickenscher, A., Novins, D., & Beals, J. (2006). A pilot study of motivation and treatment completion among American Indian adolescents in substance abuse treatment. *Addictive Behaviors, 31,* 1402-1414.

Field, C.A., Duncan, J., Washington, K., & Adinoff, B. (2007). Association of baseline characteristics and motivation to change among patients seeking treatment for substance dependence. *Drug and Alcohol Dependence, 91* (1), 77-84.

Fiorentine, R., & Hillhouse, M. (2004). The addicted-self model of addictive behavior cessation: does it predict recovery for gender, ethnic, age, and drug preference populations? *The American Journal on Addiction, 13,* 268- 280.

German, D., Sherman, S.G., Sirirojn, B., Thomson, N., Aramrattana, A., & Celentano, D.D. (2006). Motivations for methamphetamine cessation among young people in northern Thailand. *Addiction, 101,* 1143-1152.

Goehl, L., Nunes, E., Quitkin, F., & Hilton, I. (1993). Social networks and treatment

outcome: the costs and benefits of social ties. *American Journal of Drug and Alcohol Abuse*, *19* (3), 251-262.

Gossop, M., Stewart, D., & Marsden, J. (2006). Readiness for change and drug use outcomes after treatment. *Addiction, 102*, 301-308.

Graham, K., Brett, P.J., & Bois, C. (1995). Treatment entry and engagement: A study of the process at assessment/referral centers. *Contemporary Drug Problems, 22*, 61-104.

Highfield, D., Schwartz, R., Jaffe, J., & O'Grady, K. (2007). Intravenous and intranasal heroin-dependent treatment-seekers: characteristics and treatment outcome. *Addiction, 102*, 1816-1823.

Hiller, M.L., Knight, K., Leukefeld, C., & Simpson, D.D. (2002). Motivation as a predictor of therapeutic engagement in mandated residential substance abuse treatment. *Criminal Justice and Behavior*, *29* (56), 56-75.

Horvath, A. (1993). Enhancing motivation for treatment of addictive behavior: Guidelines for the psychotherapist. *Psychotherapy, 30* (3), 473-480.

Joe, G.W., Simpson, D., & Broome, K.M. (1998). Effects of readiness for drug abuse treatment on client retention and assessment of process. *Addiction*, 93 (8), 1177-1190.

Lozano, B.E., Stephens, R.S., & Roffman, R.A. (2006). Abstinence and moderate use goals in the treatment of marijuana dependence. *Addictions*, *101*, 1589-1597.

Maisto, S., Conigliaro, J., McNiel, M., Kramer, K., O'Connor, M., & Kelley, M. (1999). Factor structure of the SOCRATES in a sample of primary care patients. *Addictive Behaviors, 24* (6), 879-892.

McBride, C., Curry, S., Stephens, R., Wells, E., Roffman, R., & Hawkins, J. (1994). Intrinsic and extrinsic motivation for change in cigarette smokers, marijuana smokers and cocaine users. *Psychology of Addictive Behaviors*, *8* (4), 243-250.

Melnick, G., De Leon, G., Hawke, J., Jainchill, N., & Kressel, D. (1997). Motivation and readiness for therapeutic community treatment among adolescents and adult substance abusers. *American Journal of Drug and Alcohol Abuse*, *23* (4), 485-506.

Mertler, C., & Vannatta, R. (2005). *Advanced and multivariate statistics.* (3rd Ed.). Glendale, CA: Pyrczak Publishing.

Messina, N., Burdon, W., Hagopian, G., & Prendergast, M. (2006). Predictors of prison-based treatment outcomes: A comparison of men and women participants. *The*

American Journal of Drug and Alcohol Abuse, 32, 7-28.

Miller, W.R. (1985). Motivation for treatment: A review with special emphasis on alcoholism. *Psychological Bulletin, 98* (1), 84-107.

Miller, W.R., & Rollnick, S. (2002) *Motivational interviewing: Preparing people for change* (2nd ed.). New York: The Guilford Press.

Miller, W.R. & Tonigan, J.S. (1996). Assessing drinkers' motivation for change: The stages of change readiness and treatment eagerness scale (SOCRATES). *Psychology of Addictive Behaviors, 10* (2), 81-89.

Miller, W.R., Yahne, C.E., & Tonigan, J.S. (2003). Motivational interviewing in drug abuse services: A randomized trial. *Journal of Consulting and Clinical Psychology, 71* (4), 754-763.

Neale, J., & Robertson, M. (2005). Recent life problems and non-fatal overdose among heroin users entering treatment. *Addiction, 100,* 168-175.

Nwakeze, P., Magura, S., & Rosenblum, A. (2002). Drug problem recognition, desire for help, and treatment readiness in a soup kitchen population. *Substance Use & Misuse, 37* (3), 291-312.

Pollini, R., O'Toole, T., Ford, D., & Bigelow, G. (2006). Does this patient really want treatment? Factors associated with baseline and evolving readiness for change among hospitalized substance using adults interested in treatment. *Addictive Behaviors, 31,* 1904-1918.

Prochaska, J.O., DiClemente, C.C., & Norcoss, J.C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47* (9), 1102-1114.

Proudfoot, H., & Teesson, M. (2002). Who seeks treatment for alcohol dependence? Findings from the Australian national survey of mental health and wellbeing. *Social Psychiatry Psychiatric Epidemiology, 37,* 451-456.

Rapp, R., Li, L., Siegal, H., & DeLiberty, R. (2003). Demographic and clinical correlates of client motivation among substance abusers. *Health and Social Work, 28* (2), 107-115.

Ravarino, J.M., Gardner, M.K., Hill, R.D., & Lundberg, K. (2008). Effectiveness of pretreatment interim support group attendance in facilitating treatment enrollment among methamphetamine abusers. *Addictive Behaviors, 33* (2) 336-341.

Rosenhow, D., Monti, P., Martin, R., Colby, S., Myers, M., Gulliver, S., et al. (2004). Motivational enhancement and coping skills training for cocaine abusers: Effects

on substance use outcomes. *Addiction, 99,* 862-874.

Ross, J., Teesson, M., Darke, S., Lynskey, M., Ali, R., Ritter, A., et al. (2005). The characteristics of heroin users entering treatment: findings from the Australian Treatment Outcome Study (ATOS). *Drug and Alcohol Review, 24,* 411-418.

Ryan, R.M., Plant, R.W., & O'Malley, S. (1995). Initial motivations for alcohol treatment: Relations with patient characteristics, treatment involvement, and dropout. *Addictive Behaviors, 20* (3), 279-297.

Schwartz, R., Highfiled, D., Jaffe, J., Brady, J., Butler, C., Rouse, C., et al. (2006). A randomized controlled trial of interim methadone maintenance. *Archives of General Psychiatry, 63,* 102-109.

Share, D., McCrady, B., & Epstein, E. (2004). Stage of change and decisional balance for women seeking alcohol treatment. *Addictive Behavior, 29,* 525-535.

Sinha, R., Easton, C., Renee-Aubin, L., & Carroll, K.M. (2003). Engaging young probation-referred marijuana-abusing individuals in treatment: A pilot trial. *The American Journal on Addiction, 12,* 314-323.

Stephens, R.S., Roffman, R.A., Fearer, S.A., Williams, C., Picciano, J.F., & Burke, R.S. (2004). The marijuana check-up: Reaching users who are ambivalent about change. *Addiction, 99,* 1323-1332.

Stephens, R.S., Roffman, R.A., Fearer, S.A., Williams, C., & Burke, R.S. (2007). The marijuana check-up: Promoting change in ambivalent marijuana users. Addiction, *102,* 947-957.

Stevens, A., Berto, D., Frick, U., Hunt, N., Kerschl, V., McSweeney, T., et al. (2006). The relationship between legal status, perceived pressure and motivation in treatment for drug dependence: Results from a European study of quasi-compulsory treatment. *European Addiction Research, 12,* 197-209.

Tabachnick, B. G. & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). pp. 437-505. New York: Harper Collins College Publishers.

Thompson, A., Hunt, C., & Issakidis, C. (2004). Why wait? Reasons for delay and prompts to seek help for mental health problems in an Australian clinical sample. *Social Psychiatry & Psychiatric Epidemiology, 39,* 810-817.

Urbanoski, K., Strike, C., & Rush, B. (2005). Individuals seeking treatment for cannabis-related problems in Ontario: Demographic and treatment profile. *European Addiction Research, 11,* 115-123.

Utah Division of Substance Abuse and Mental Health, State of Utah, Department of

Human Services. (2007). *2007 Annual Report*. Retrieved on June 26, 2010 from www.dsmah.utah.gov

Vendetti, J., McRee, B., Miller, M., Christiansen, K., Herrell, J., & The Marijuana Treatment Project Research Group (1997). Correlates of pre-treatment drop-out among persons with marijuana dependence. *Addiction, 97*, 125-134.

Weisner, C., Lu, Y., Hinman, A., Monahan, J., Bonnie, R., Moore, C., et al. (2009). Substance use, symptom, and employment outcomes of persons with a workplace mandate for chemical dependency treatment. *Psychiatric Services, 60* (5), 646-654.

Weisner, C., Mertens, J., Tam, T., & Moore, C. (2001). Factors affecting the initiation of substance abuse treatment in managed care. *Addiction, 96*, 705-716.

Yancovitz, S.R., Des Jarlais, D.C., Peyser, N.P., Drew, E., Friedman, P., Trigg, H.L., & Robinson, J.W. (1991). A randomized trial of an interim methadone maintenance clinic. *American Journal of Public Health, 81* (9), 1185-1191.